

Taking too much folic acid while pregnant may put daughters at risk of diabetes and obesity

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Mothers that take excessive amounts of folic acid during pregnancy may predispose their daughters to diabetes and obesity later in life, according to a new study published today in the *Journal of Endocrinology*. With high dose supplements being widely available, the study calls for a need to establish a safe upper limit of folic acid intake for pregnant women.

A Portuguese research team from the Faculty of Medicine of the University of Porto and the Catholic University of Portugal gave rats 20 times their recommended daily amount of [folic acid](#) throughout mating, the pregnancy period and lactation.

These rats gave birth to babies who grew up to be overweight and insulin resistant in adulthood. The babies also grew up to be deficient in adiponectin – a hormone that protects them against diabetes and obesity - and had irregular feeding behaviour. All of these symptoms were more pronounced in female adults. On the other hand, rats consuming the recommended daily amount of folic acid had babies who grew up to be healthier adults.

An adequate intake of folic acid is essential to reduce the risk of babies suffering from neural tube defects such as spina bifida, particularly during the first 10 weeks of pregnancy. The World Health Organisation recommends that healthy [pregnant women](#) take 0.4 mg of folic acid per day. Women with a family history of [neural tube defects](#) are

recommended to take ten times this amount, for which 5 mg folic acid pills are widely available.

However, few studies have looked at the safe upper limit of folic acid intake, even though pregnant women around the world are consuming increasingly high amounts of folic acid thanks to food fortification policies and widely available supplements and multivitamins.

"While taking a minimum of 0.4mg of folic acid per day is essential when pregnant, our study shows that it is possible to have too much of a good thing", said lead author of the study Professor Elisa Keating.

"Considering the increasing amount of folic acid consumed during pregnancy through fortified foods, multivitamin pills and supplements, the search for a safe upper dose of folic acid is urgently needed".

"Our study clarifies the potential effects of excess folic acid exposure and may play an important role on rethinking current public health policies surrounding folic acid supplementation".

The researchers will continue to investigate the mechanisms by which folic acid affects the metabolism of rat offspring and how their findings can be applied to human health recommendations.

More information: Keating et al. (2015), "Excess perigestational folic acid exposure induces metabolic dysfunction in post-natal life", *Journal of Endocrinology* 224 (3) 245-259 [DOI: 10.1530/JOE-14-0448](https://doi.org/10.1530/JOE-14-0448)

Provided by Society for Endocrinology

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